

Remarks/ARGUMENTS

In response to the above-identified Office Action, Applicants have amended their application and respectfully request reconsideration thereof.

Amendment of Claims

Claim 1 has been amended to further clarify that a new priority is assigned to a task. The word “new” has been added to claim 1 to clarify this aspect. The same word has been added to claim 9. Support for this amendment can be found in the description at page 20, line 15 – page 21, line 5.

Claims 4 and 17 have been amended to substitute “wherein” for “within”.

Amendment of Drawings

The Office Action objected to the drawings as failing to comply with 37 C.F.R. 1.83(a). Specifically, the drawing fails to show a “transaction event”, as required by claim 2, and a “transaction information task”, required by claim 4.

Applicants have submitted herein Figure 8 under C.F.R. 1.121(d) that includes proposed drawing corrections in red identifying an exemplary “transaction event” and an exemplary “transaction information task”. Support for these corrections may be found in claims 2, 4, and pages 12 - 14.

Amendment of Specification

A replacement paragraph (begins on page 13, line 16) including the limitation “transaction event” and a replacement paragraph (begins on page 14, lines 13) including the limitation “transaction information task” have been added to the specification.

Response to Claim Rejections – 35 USC § 112 – First paragraph

Claims 2, 4 and 17 stand rejected under 35 U.S.C § 112, first paragraph, as containing subject matter which is not described in their specification in such a way as to enable one skilled in their art to which it pertains, or with which it is most nearly connected to make and/or use their invention. Specifically, the Office Action states that limitations of “transaction event” and “transaction information task” do not appear in the specification.

The claims as filed in the original specification are part of the disclosure and therefore, if an application as originally filed contains a claim disclosing material not disclosed in the remainder of the specification, the applicant may amend the specification to include the claimed subject matter. MPEP 2163.06 citing *In re Benno*, 768 F.2d 1340, 226 USPQ 683 (Fed. Cir. 1985).

Responsive to claim 2, Applicants have submitted herein a replacement paragraph (begins on page 13, line 16) including the limitation “transaction event” and responsive to claims 4 and 17, Applicants have submitted herein a replacement paragraph (begins on page 14, lines 13) including the limitation “transaction

information task". Applicants contend that inserting the above-described limitations within the selected paragraphs enables one skilled in the art to make and/or use the invention.

Response to Claim Rejections – 35 USC § 112 – second paragraph

Claim 1 stands rejected under 35 U.S.C § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Specifically the Office Action states "the limitation of 'the distributing the task responsive to dynamically assigning a priority to the task' does not make sense as to the section of 'the distributing the task'. Please amend or clarify what this means."

Applicants believe that the claim limitation "the distribution the task responsive to dynamically assigning a new priority to the task", as amended, is clear to a person having ordinary skill in the applicable arts. The application discloses the following:

The pool of worker threads 202 is responsible for executing the tasks 205 queued within the task queue 128. As each worker thread becomes available, a scheduler 204 identifies the highest priority task from the task queue 128, and feeds the task to the available worker thread that executes a single step of the relevant task. Further details regarding the execution of tasks by the pool of threads, where the pool of threads are executed on a multiprocessor platform, are provided below.

In an alternative embodiment of the present invention, an algorithm implemented within a scheduler associated with the task queue 128 may intelligently determined a "BestMatch" between an available thread and the tasks that are queued within the task queue 128. ...

...In identifying a task to be attributed to an available worker thread, the scheduler 204 may identify a "real-time" priority associated with a task.

Specifically, a task identified as having a "real-time" priority will be regarded as having a highest priority, and assigned to an available thread ahead of any other tasks not having a "real-time" priority (Emphasis added).

Application, page 20, line 8 – page 21, line 5.

The first paragraph in the above disclosure describes a task that is distributed from a task queue based on a priority that is assigned to the task (e.g., see item 254 on Figure 7). The assigned priority corresponds to a priority of a workflow that created the task (id. at lines 18-20) or a priority of an event that prompted the workflow (page 19, lines 15-16) or a default priority of zero (id. at line 20-21).

The second and third paragraphs, however, describe a scheduler that distributes a task from a task queue based on a new priority that that task scheduler dynamically assigns to the task. The word "dynamic" is defined as "marked by continuous change, activity, or progress"¹ and the phrase "dynamically assigns" may be contrasted with the quality of assignment that is described in the first paragraph. The task scheduler may be said to "dynamically assign" because the determination to assign may be based on the availability of a thread (e.g., continuous, change or activity) that matches the task (e.g., as determined by an algorithm, "BestMatch"). In summary, Applicants believe the claim limitation "the distribution the task responsive to dynamically assigning a new priority to the task" is language that particularly points out and distinctly claims the subject matter which the applicant regards as the invention

¹ Webster's II New College Dictionary, Houghton Mifflin Company (1999).

Response to Claim Rejections – 35 USC § 103

Claims 1, 2, 4, 7-13, 15, 17, 19, 20 and 24-27 stand rejected under 35 U.S.C. § 103(a), as being allegedly unpatentable over U.S. Patent No. 6,289,369 (hereinafter Sundaresan) in view of U.S. Patent No. 6,658,447 (hereinafter Cota-Robles).

Applicants respectfully submit that claims 1, 2, 4, 7-13, 15, 17, 19, 20 and 24-27 should not be rejected under 35 U.S.C. § 103(a) for the reason that prior art references when combined do not teach or suggest all of the claim limitations of the independent claims of the present application. Reasons for rejection of claims 1, 2, 4, 7-13, 15, 17, 19, 20 and 24-27 appear below.

To establish a **prima facie** case of **obviousness**, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

Claim 1 includes the following limitation:

distributing a task....from a task queue to an available thread...within a pool of threads operating within a multiprocessor system,

the distributing the task responsive to dynamically assigning a new priority to the task;

The Office Action, in rejecting claim 1, contends that the above limitation is anticipated by the following disclosure in Sundaresan:

The present invention provides an architecture in which the execution dynamics of a thread, as measured by fetch, issue, and retirement heuristics of the SMT processor, can be adjusted according to the thread's OS priority, to provide a dynamic priority for the thread. The dynamic priority provided by the present invention thus incorporates the notion of priority-based scheduling into the heuristics implemented by the processor hardware. As a result, the instruction throughput of high priority threads (critical instruction streams) is maximized without significantly impacting the total instruction throughput of all scheduled threads.

Col. 5, lines 37-48.

The above quote from Cota-Robles describes adjusting the execution dynamics of a thread by providing a dynamic priority for the thread. The adjustment introduces the notion of priority-based scheduling into an SMT (simultaneous multithreading) Processor. An SMT processor allows multiple threads to execute on a single processor (Col. 2, line 1-3).

The OS (operating system) schedules multiple threads onto an SMT processor, and on each clock cycle, the SMT processor selects instructions for execution from among the scheduled threads. For example, an 8-issue SMT processor, i.e. a processor capable of issuing up to 8 instructions per clock cycle, has 8 instruction slots that can be filled on each clock cycle. The SMT processor selects these instructions from different threads scheduled by the OS.

Col. 2, lines 4-9.

Claim 1 requires distributing a task from a task queue responsive to dynamically assigning a new priority to the task. Merely for example, a task scheduler may perform

an algorithm that dynamically assigns a high priority to a task based on the availability of a thread that matches the task. In contrast, the above quote does not describe dynamically assigning a priority to a task; but rather, providing a priority for a thread. The thread described above is different from a task because the thread described above is already executing on a SMT processor, rather than waiting on a task queue. Sundaresan therefore cannot be said to anticipate the above quoted limitation because Sundaresan discloses providing a priority to a thread that is already executing on a processor and claim 1 requires distributing a task from a task queue responsive to dynamically assigning a new priority to the task.

Independent claim 9 includes a limitation corresponding substantially to the above-discussed limitation of claim 1. The above remarks are accordingly also applicable to a consideration of this claim.

In addition, if an independent claim is nonobvious under 35 U.S.C. § 103(a) then, any claim depending therefrom is nonobvious and rejection of claims 2, 4, 7-8, 10-13, 15, 17, 19, 20 and 24-27 under 35 U.S.C. § 103(a) is also addressed by the above remarks.

In summary, Sundaresan in combination with Cots-Robles does not teach or suggest each and every limitation of claims 1, 2, 4, 7-13, 15, 17, 19, 20 and 24-27 as required to support rejections of the independent claims of the present application under 35 U.S.C. § 103(a).

Claims 3 and 16 stand rejected under 35 U.S.C. § 103(a), as being allegedly unpatentable over U.S. Patent No. 6,289,369 (hereinafter Sundaresan) in view of U.S. Patent No. 6,658,447 (hereinafter Cota-Robles) in further view of U.S. Patent No. 6,314,089 (hereinafter Szlam).

Claims 13 and 16 depend on independent claims 1 and 9. If an independent claim is nonobvious under 35 U.S.C. § 103(a) then, any claim depending therefrom is nonobvious and rejection of claims 3 and 16 under 35 U.S.C. § 103(a) is also addressed by the above remarks.

In summary, Sundaresan in combination with Cota-Robles and Szlam does not teach or suggest each and every limitation of claims 3 and 16 as required to support rejections of the independent claims of the present application under 35 U.S.C. § 103(a).

Claim 5 stand rejected under 35 U.S.C. § 103(a), as being allegedly unpatentable over U.S. Patent No. 6,289,369 (hereinafter Sundaresan) in view of U.S. Patent No. 6,658,447 (hereinafter Cota-Robles) in further view of U.S. Patent No. 6,222,530 (hereinafter Sequeira).

Claims 5 depends on independent claim 1. If an independent claim is nonobvious under 35 U.S.C. § 103(a) then, any claim depending therefrom is nonobvious and rejection of claims 3 and 16 under 35 U.S.C. § 103(a) is also addressed by the above remarks.

In summary, Sundaresan in combination with Cota-Robles and Sequeira does not teach or suggest each and every limitation of claim 5 as required to support rejections of the independent claims of the present application under 35 U.S.C. § 103(a).

In summary, Applicants believe that all rejections presented in the Office Action have been fully addressed and withdrawn of these rejections is respectfully requested. Applicants furthermore believe that all claims are now in a condition for allowance, which is earnestly solicited.

If there are any additional charges, please charge Deposit Account No. 02-2666. If a telephone interview would in any way expedite the prosecution of the present application, the Examiner is invited to contact Mark Vatuone at (408) 947-8200.

Respectfully submitted,

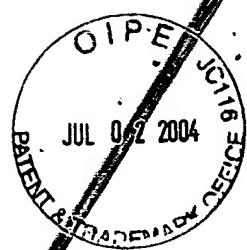
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

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Mark R. Vatuone
Reg. No. 53,719

12400 Wilshire Blvd.
Seventh Floor
Los Angeles, CA 90025-1026
(408) 947-8200



"Annotated Marked-up Drawings"

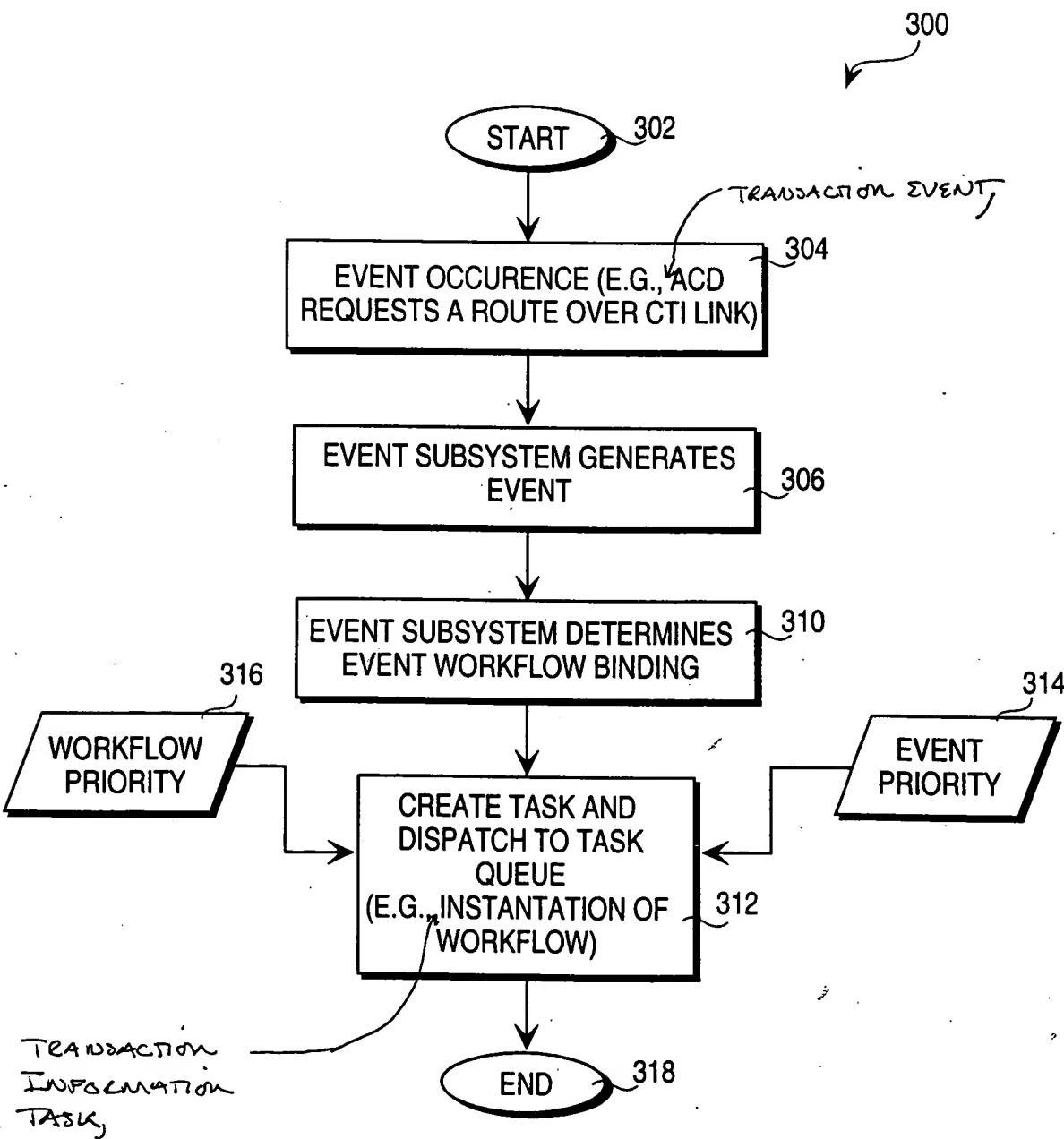


FIG. 8